

Official Organ of the Amer. College of Chest Physicians
Editorial offices 1018 Mills Building, El Paso, Texas
Business Address Myrtle at Virginia, El Paso, Texas

MEMBER: ASSOCIATED EDITORS OF TUBERCULOSIS PUBLICATIONS



(A MONTHLY PUBLICATION)

Subscription: United States and
Canada \$2.00 per year. Other
countries \$2.50 per year.
Entered as second-class matter
August 18, 1936, at the post office
at El Paso, Texas, under the Act
of August 24, 1912.

Editorial Comment

DOCTOR ESMOND R. LONG IS HONORED

Esmond R. Long for Honorary Membership in the Philadelphia County Medical Society. Doctor Long has been working in Philadelphia for the past five years as director of the Laboratory and Director of the Henry Phipps Institute for Study, Treatment, and Prevention, of Tuberculosis.

A nationally and World prominent figure in various phases of tuberculosis research, author of numerous books and papers on the same subject, Doctor Long has received many of the highest honors from the greatest Scientific Societies in America. Last year he was President of the National Tuberculosis Association, from which he received the Trudeau Medal in 1932.

The Philadelphia physicians sponsoring the Honor to Doctor Long are: Dr. Chevalier Jackson, World famous Bronchoscopist; Dr. Robert G. Torrey, Professor of Medicine, Women's Medical College of Philadelphia; Dr. A. C. Morgan, a member of the House of Delegates of the American Medical Association; Dr. Charles Leonard Brown, Professor of Medicine, Temple University School of Medicine; Dr. Hobart A. Reimann, Pro-

NINE outstanding physicians of Philadelphia and the writer have endorsed

fessor of Medicine, Jefferson Medical College; Dr. William Egbert Robertson, President of the Philadelphia County Medical Society; Dr. Edward Bortz, Chief of Medical Service, Lankenau Hospital; Dr. Moses Behrend, Thoracic Surgery Chief of Philadelphia General Hospital and State of Pennsylvania Tuberculosis Sanatoria; and Dr. Frederick S. Baldi, Superintendent of County Prisons of Philadelphia.

F. W. B.

UNTRAINED PNEUMOTHORAX OPERATORS

It is time for a word of caution regarding the practice in some hospitals of allowing insufficiently trained medical personnel to perform Artificial Pneumothorax.

Serious and sometimes fatal complications result from this practice.

Almost as baneful is the practice of having a different trained operator for each refill. This deprives the patient of the better judgment possible when one operator watches the effect on the patient's disease of varying intrapleural pressures and concomitant degrees of collapse. The patient misses and resents the lack of personal interest and loss of patient-doctor relationship and confidence which such a practice engenders.

Investigation will show that these two reasons are operative in many hospitals

treating Tuberculosis where the percentage of patients leaving "against advice" is too high.

F. W. B.

SULPHANILAMIDE THE clinical and laboratory investigation of Sulphanilamide is going on at a furious pace throughout the World.

Two Facts Stand Out:

1. It is indicated by investigations thus far that the chemical has tremendous therapeutic effect in *Pneumococcus Pneumonia*, irrespective of Type, and in some streptococcic and other infections.

2. It is indicated that the drug must be used with caution; the most apparent danger being the variation in individual tolerance. Therefore, the patient must be closely supervised by the physician, and blood and other changes constantly looked for.

It is earnestly recommended by the writer that every practicing physician who has not already done so, familiarize himself with the observations already made and carefully and critically watch developments.

An article on this subject by Dr. Harold R. Bohlman, of Baltimore, Md., appears in this issue on page 24.

F. W. B.

MEMBERSHIP IN THE AMERICAN COLLEGE OF CHEST PHYSICIANS

CHARTER Membership in The American College of Chest Physicians has now been closed in fourteen states and the District of Columbia, with the exception of certain chest specialists of importance in National, State, County, and Municipal State Sanatoriums who did not have an opportunity to join The American College of Chest Physicians until the change in the By-laws of June 7th, 1937.

As the quota of Charter Memberships for the remaining states is reached, it is proposed to close them likewise. Membership thereafter will be dependent upon examination conducted by the Board of Regents. The entrance fee will then be \$50.00 payable prior to examination. A proper refund will be made to those applicants failing to be passed by the Board of Regents.

The Board of Regents as they now stand are as follows: Ralph C. Matson, M.D., Portland, Oregon, Vice-Chairman; H. Frank Carman, M.D., Dallas, Texas; McLeod M. George, M.D., Denver, Colorado; Benjamin Goldberg, M.D., Chicago, Illinois; Edward W. Hayes, M.D., Monrovia, California; John N. Hayes, M.D., Saranac Lake, N. Y.; Champneys H. Holmes, M.D., Atlanta, Georgia; Jay Arthur Myers, M.D., Minneapolis, Minn.; Edward J. O'Brien, M.D., Detroit, Michigan; Victor S. Randolph, M.D., Phoenix, Arizona.

FRANK WALTON BURGE, M. D.,
Chairman,
Philadelphia, Pa.

THE DETROIT PLAN RECENTLY, we have been hearing much about the DETROIT PLAN for the eradication of tuberculosis. What is the DETROIT PLAN?

The DETROIT PLAN is a well rounded out tuberculosis program which will eventually bring every inhabitant of Detroit into a physician's office for a Mantoux or Von Pirquet skin test. If the reaction to the test is *Positive*, then the patient is automatically referred to a competent Radiologist for an x-ray picture. The plates are read by experienced Roentgenologists, and when in doubt, physicians from local sanatoria are called in for consultation.

Patients who are able to pay the physician's fee for the skin test and the x-ray, are expected to do so. Those patients who are not able to pay the physician's fee, can also have the services of a private physician, and the City of Detroit will pay the doctor \$1.00 for the skin test, and if an x-ray picture is indicated, the City of Detroit will pay the Roentgenologist \$3.00 for the x-ray plate. For this purpose, the City of Detroit has set aside a fund of \$1,000,000 to be spent within the next five years.

The City of Detroit is making use of every available bed in its fight against tuberculosis. More than a thousand beds in private sanatoria have been contracted for by the city for the care of tuberculous

patients, who cannot be accommodated in the City, County, or State Sanatoria.

Legislation has been enacted to hospitalize by compulsion, if necessary, those tuberculous individuals, who may be a menace to the community wherein they reside. This is especially applicable, when there are small children in the family.

Physicians are trained for their work, and they are compensated by the City of Detroit for their services. Visiting nurses, especially trained in tuberculosis work follow up every known case and contact.

The City of Detroit through its Health Department, the Wayne County Medical Society, and the Detroit Tuberculosis Sanatorium Association are united in this fight to eradicate tuberculosis.

Dr. Bruce Douglas, Tuberculosis Controller at Detroit, has released the following figures: Up to July 1st, there were 41,434 skin tests made in Detroit of which 10,010 were *Positive*. Of the 10,010 *Positive Reactors*, 7,403 had been x-rayed, and 313 *Clinical Cases* of tuberculosis were found. This report shows that they are finding approximately one active case of tuberculosis for every one hundred cases tested. Should this ratio hold true all over the United States, and we have every reason to believe that it would be higher in many other communities; however, using the Detroit statistics as a basis: there are 120,000 people walking the streets with active tuberculosis and they are unaware of the fact that they have an active communicable disease. Who is safe from infection? What is to be done about it? Note what Detroit is doing!

They are not content with merely repeating, "Public Health is purchasable." *They have set out to purchase it.* If they can conquer tuberculosis, and from all indications, it looks very much that they are on the right track; then, the money expended will be a drop in the bucket compared to what is spent annually for sanatorium care. And, how about the saving of human lives? And, how about the saving of human suffering, and all of the economic ills that go hand in hand with tuberculosis?

The American College of Chest Phys-

icians in annual Session at Atlantic City, passed a resolution endorsing the DETROIT PLAN.

Dr. Henry F. Vaughan, Dr. Bruce H. Douglas, Dr. Edward J. O'Brien, Paul de Kruif, A. M. Smith, the Detroit News, and Radio Station W.W.J.; we salute you, and we say: "This is not Detroit's fight alone; it is the fight of every City and of every Township in the United States." As long as tuberculous patients with positive sputum travel from one City to another, no one is safe from infection. The DETROIT PLAN is pointing the way. Let us follow!

EDITOR'S NOTE:

The above editorial has been released for publication by Murray Kornfeld, President of the Associated Editors of Tuberculosis Publications, and the Managing Editor of Diseases of the Chest.

It will appear in approximately forty (40) sanatorium publications in the United States and Canada. The combined circulation of these publications is more than 60,000.

The Associated Editors of Tuberculosis Publications have undertaken to publish a syndicated article each month on current news in the tuberculosis field, and this article by Murray Kornfeld is the first in a series released by their Committee on Policy and Publicity.

The editors of DISEASES OF THE CHEST extend their congratulations to the members of the association upon their splendid undertaking, and for the useful work that the individual editors have been doing over a period of years. The various "San-Mags" are a splendid adjunct to our fight for the eradication of tuberculosis, and they occupy a necessary place in our sanatorium life.

We are pleased to note that articles in these sanatorium publications are being reprinted from DISEASES OF THE CHEST. We are at all times ready to lend our assistance to worthy sanatorium publications, and are therefore pleased to publish the above editorial.

C. M. H.

SOUTHERN TUBERCULOSIS CONFERENCE

ONE of the outstanding meetings of the year, is the Southern Tuberculosis Conference. This year, Richmond, Virginia is the host City; and the program committee has prepared an interesting program for the meeting. For a list of the speakers and other particulars about the meeting, please turn to page 22.

C. M. H.

DISEASES OF THE CHEST

For a practical journal on Chest diseases we recommend "*Diseases of the Chest*." Reading time of papers published is from 5 to 15 minutes. Take advantage of subscription offer on page 32. C. M. H.

Thoracoplasty in Tuberculosis Of the Lungs*—(A Review)

It is just three years since the establishment of a Unit in Thoracic Surgery, Department of Tuberculosis, in the Philadelphia General Hospital. Our object in making this presentation is for the purpose of giving you a resume of our results obtained by the operation of thoracoplasty as a means of producing collapse of the lung. Our results in this hospital with this operation have been almost revolutionary. While we must admit that three years is not quite sufficient time to evaluate these results, the number of arrested cases has been encouraging and prompts us to present them.

The choice of operation for each individual is considered in our conferences, which are held every second Wednesday of the month at 4 p. m.

Results of Thoracoplasty

Coming now to the basic feature of our paper—the results of thoracoplasty in the past three years, I would call your attention to the fact that 25 cases have been discharged from this hospital as arrested or greatly improved types of their disease. Fifteen of these were free of tubercle bacilli before they left the hospital. Two patients who left the hospital sputum positive are now negative. We believe that others who have submitted to this form of compression therapy will eventually become negative.

This much desired result has been ultimately gained with the greatest amount of cooperation on the part of the patient, phthysiologist, and surgeon. On account of the formation of a follow-up clinic presided over by the Unit in Thoracic Surgery, we have had, in the past few weeks, an opportunity to observe our results. One of the phthysiologists, after viewing the x-ray plates of three of our

BY

MOSES BEHREND, M. D.
RICHARD H. MEADE, JR., M.D.
RUBEN M. LEWIS, M.D.
Philadelphia, Pa.

patients recently said, "When one considers that four years ago no surgery of this kind was performed in this hospital, you ought to have a

swelled head with the results you are getting." Such praise is but an added inducement to carry on with better work and greater results in the future.

To enter specifically upon the consideration of each arrested case would take up too much time. Of great value, however, is the consideration of a few, not only of our good results, but also of those which were unsuccessful. Possibly it would be in order to give a brief account of those cases in which we failed. The reasons for not having these patients bacteria free can be graphically shown by the lipiodol injections as carried out by Dr. Blumberg, who used the so-called gravity method. We have obtained a valuable amount of information from these bronchograms and the Unit in Thoracic Surgery wishes to express its indebtedness to him at this time.

Illustrative Cases (Improved)

For example, T. K. has had five stages including an antero-lateral thoracoplasty. Sputum is still positive. Lipiodol shows communication with the bronchus, and at the base of the lung there is evidence of bronchiectasis. This accounts in part for the positive sputum. Figs. I, II, III.

S. K. has had the same number of operations. In addition, she has had tuberculous laryngitis which has cleared up almost entirely following the various stages of thoracoplasty. This is due to the fact that the larynx is exposed less to the action of the tubercle bacillus. The lipiodol has entered bronchiectatic cavities. Figs. IV, V, VI, VII.

A. C. had four stages of thoracoplasty including an anterolateral. She left the Philadelphia General Hospital about three months ago and entered a sanator-

*Read before Staff Meeting, Department of Tuberculosis, Philadelphia General Hospital, November 10, 1936.

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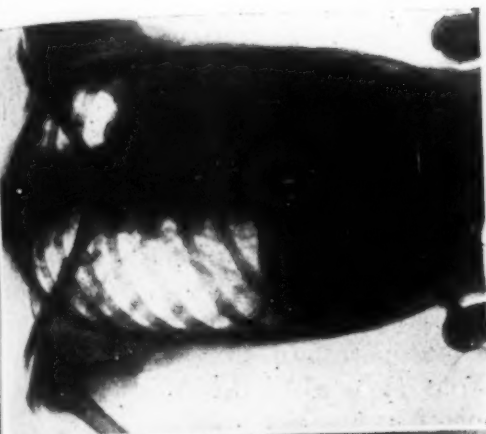


Fig. IV: S. K. The original condition.

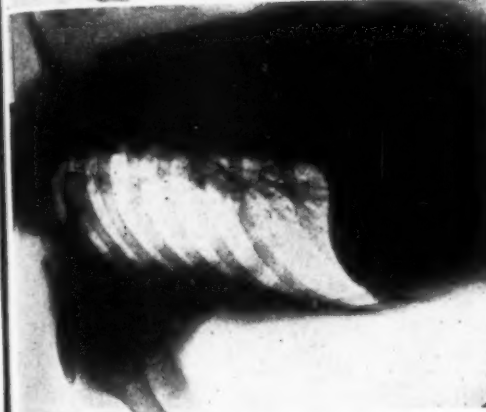


Fig. III: T. K. Lateral view showing the 5 stages of graded extra pleural thoracoplasty. Lipidol shows bronchiectasis.

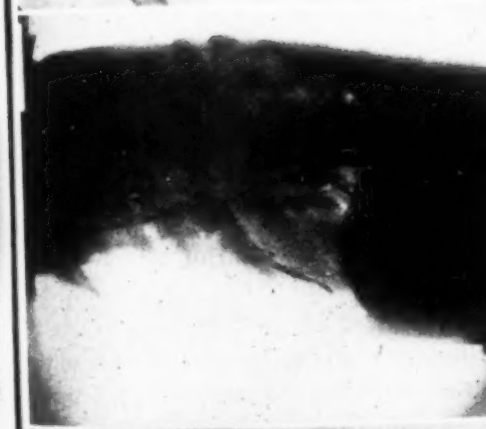


Fig. II: T. K. Antero-posterior view after five stages of graded extra pleural thoracoplasty. Lipidol shows bronchiectasis.

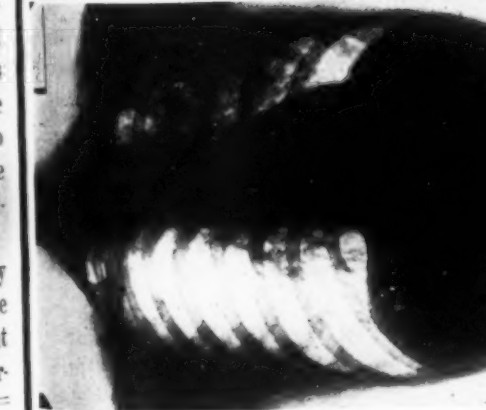


Fig. I: T. K. The original condition.

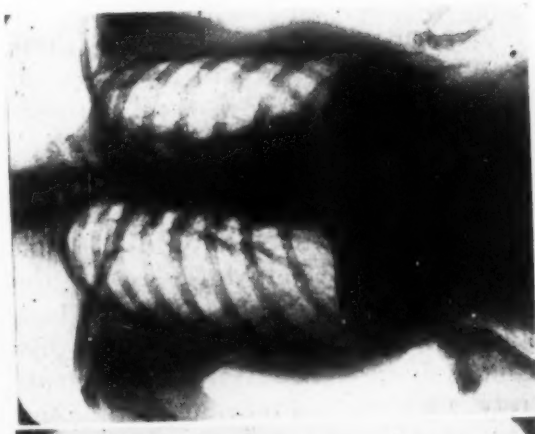


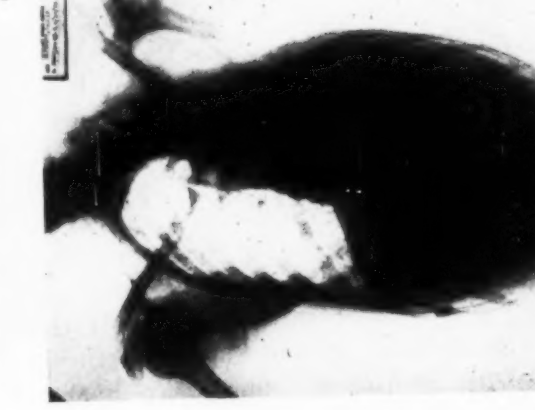
Fig. VII: S. K. Lateral view illustrating bronchiectasis and cavity formation. Lipidol shows bronchiectasis. Counting for persistent tubercle bacilli.



Fig. VI: S. K. Lipiodol injections showing active lesion on right side.



Fig. V: S. K. Persistent cavity after five operations.



for many years, are still inadequate. However, 25 arrested and improved cases in the comparatively short time of three years must demonstrate to all the vital part that surgery plays in the treatment of tuberculosis of the lungs.

Prevention of Tuberculosis

The President of the Philadelphia County Medical Society has stressed the idea that topics in this year's meetings are to be devoted almost solely to the prevention of disease. The first meeting dealt entirely with the prevention of tuberculosis of the lungs. Statistics were given by the speakers mentioned above, illustrating a gratifying decrease in the death rate as a result of the improved methods of treating tuberculosis, and as an added method of prevention thoracoplasty may be placed high in the list. The expressions of gratitude on the part of the patient who is able to return to his family because he is no longer a carrier of infection, are indeed gratifying. Many examples could be cited but one case stands out very prominently—that of a mother of two children who had not been home for seventeen months. She is now happy and well and still gaining weight.

Gain in Weight

It has been observed in the majority of patients who have had thoracoplasties, whether they become tubercle bacillus free or not, that the gain in weight varies from 5 to 40 pounds. In addition, the enforced bed rest has also contributed its share to the well being of these patients. It is, however, the physiological rest given the lung after operation when patients are out of bed, coupled with a negative sputum, that keeps these patients arrested.

I do not believe that any other form of treatment, for example bed rest, can give the quick results that thoracoplasty does. In support of this, one has only to follow the results of the operation. With improved technic (Scandinavian method of Dr. Carl Semb) we hope to discharge more arrested patients after the first

stage.

Morbidity and Mortality

The consideration of morbidity and mortality is greatly influenced in this hospital by the character of the cases, the extent of the disease, and very often the poor physical condition of the individual when he enters our hospital. For here, as it is well known, the poor and under privileged come for treatment in greater number than to any other hospital. Notwithstanding this, the morbidity and mortality has not been greater than that of other hospitals. As stated before, we have discharged many patients as arrested and able to resume their former duties, while others have been so much improved in health as to be able to leave the institution much benefited as a result of operation. Of the eight cases that died, thoracoplasty was performed for tuberculosis of the lungs alone. All except one had bilateral involvement of the lungs. Deaths from empyema are excluded in this group. They must be considered by themselves in another paper. Of the eight that died, one patient, 49 years of age, passed away as a result of pneumonia or atelectasis.

M. H. died three months after the second stage. She developed severe gastric symptoms and a severe rise in temperature. This was no doubt, due to reactivation of the lesion.

H. Y. had bilateral tuberculosis and tuberculous laryngitis. He died as a result of bilateral superior laryngeal block performed on another service. After the operation the cough reflex disappeared. Death resulted four days after operation.

C. A. was in poor physical condition. She had three stages without any change in her condition for the better.

M. C. and F. S. died of miliary tuberculosis.

J. W. or K. died of tuberculous enteritis.

C. McH. died after the fourth stage thoracoplasty as a result of cardiac failure.

C. H. had a thoracoplasty. He died

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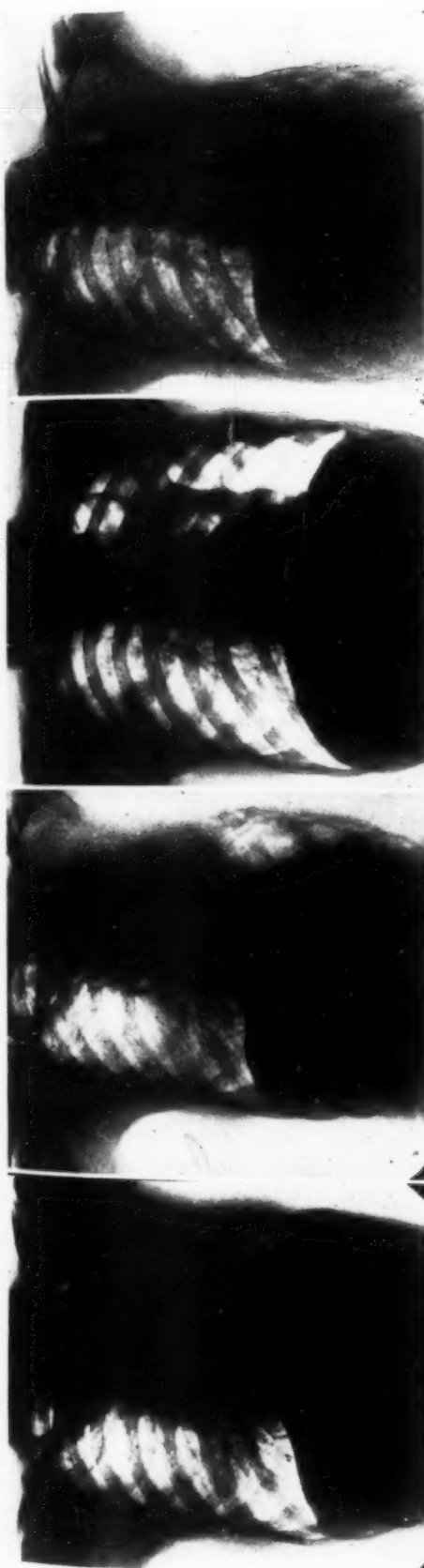


Fig. IX: B. A. Colored. The original condition.

Fig. X: B. A. Negative sputum after three stages graded extra pleural thoracoplasty.

Fig. XI: G. G., colored. The original condition following pneumothorax.

Fig. XII: G. G., Sputum negative after three stages graded extra pleural thoracoplasty.

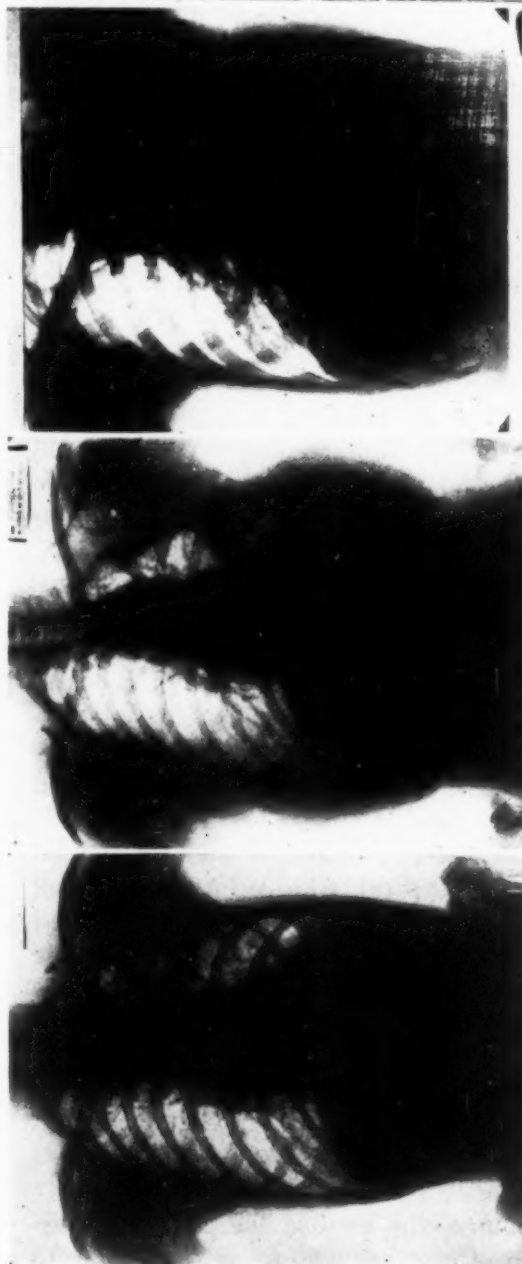


Fig. XIII: S. O'C. Condition before operation.

Fig. XIV: S. O'C. Result after two stages thoracoplasty with negative sputum. Gained 41 pounds in weight.

Fig. XV: M. Q. Age 52. Arrested with sputum after the 2nd stage operation.

MORTALITY RECORD					
Patient	Age	Sex	Color	Stage	Days Post Op.
H Y	42	M	W	IV	32
M W	43	M	W	I	14
M H	35	F	W	II	107
F S	19	M	W	II	51
C H	32	M	B	IR IL	19
C M III	41	M	B	IV	8
M C	25	M	B	III	144
J K	33	M	W	II	121
					Cause of Death
					DEATH AFTER INJECTION OF BOTH LARYNGEAL NERVES (SUPERIOR).
					PUL. TB. EXTEN. TO OTHER LUNG.
					PUL. TB. EXTEN. TO OTHER LUNG.
					TB BRONCHOPNEUMONIA
					ATELECTASIS
					TB WITH EMPYEMA
					MILIARY EXTENSION
					TB. ENTERITIS

CHART

ium where she gained 22½ pounds. Positive sputum when she left the hospital became negative in the sanatorium. This information was given in a personal communication from Dr. Gorman, Superintendent of the State Sanatorium at Hamburg, Pa. About a week ago she returned to the hospital with tubercle bacilli again present. It was rather puzzling that she should again become positive, but with the lipiodol injections we can readily see the reason. The lipiodol injections demonstrate a residual cavity, from which no doubt the tubercle bacilli are expectorated.

Illustrative Cases (Arrested)

A. L. became sputum negative after the first stage thoracoplasty. She left the institution for several months. She returned pregnant. She is now sputum positive again which in all probability is a reactivation and extension of the disease due to her pregnancy. The pregnancy has been terminated by one of our Gynecologists. Fig. VIII.

Of the twenty-five cases discharged from the hospital referred to above, those that stand out prominently are two colored men, B. A. and G. G.

B. A. was discharged after three stages of a graded extra-pleural thoracoplasty. While he has gained only about six or seven pounds, he has no cough or sputum. Figs. IX, X.

G. G., a very dark negro, has had three stages. He is bacillus free, has gained weight and feels fine. Figs. XI, XII.

S. O'C. after two stages was discharged from the hospital. She recently appeared at the Clinic with the story that she had gained 41 pounds in weight. She looks the picture of health. Figs. XIII, XIV.

M. Q., age 52, the oldest patient in our series, after two stages is well and has remained well. He was discharged over a year ago. Fig. XV.

Bilateral Thoracoplasties

Patients who arouse the keenest interest are those in whom we are able to perform bilateral thoracoplasties. These

cases must be selected with great care. We have performed this operation on three patients with one death. One of these has remained arrested for months. J. H. is known to you, having been employed in the hospital for many months before his discharge. He gained over 20 pounds and has remained arrested. C. S. is still in the hospital. The right side was operated upon two months ago and the left side during the meeting of the Clinical Congress of Surgeons last month. He gives promise of obtaining a perfect result.

Statistical Comparison

As a means of comparison it would be of benefit to compare the operative results with those of bed rest.

A brief statistical review gathered from the talks of Dr. Turnbull and Dr. Dexter at the meeting of the County Medical Society last month may help us in our deductions. Since 1900, 57,000 cases of tuberculosis of the lungs have been treated at the Philadelphia General Hospital. 21,000 have died, making the death rate 38 per cent. In 1935 there were 2904 tuberculous patients admitted to the Philadelphia General Hospital of whom 522 died. In 1935, 238 pneumothoraces, 59 thoracoplasties, 57 phrenics, and 43 pneumolyses were performed. Up to November 10, 1936, 113 thoracoplastic stages had been performed on 58 patients. Of these eight deaths followed thoracoplasty.

According to Dr. Edith MacBride Dexter, there are in this State 45,000 active cases of tuberculosis, one ninth of which are hospitalized. Her statistics show that in the State of Pennsylvania 129.6 per 100,000 died in 1905, and 49.9 per 100,000 died in 1935.

Considering the fact that in 1900, 354 patients per 100,000 died and in 1935—53.7 patients died, the great advance that has taken place in the treatment of tuberculosis is readily demonstrated. Surgery has in no small measure contributed to this advance. As stated before, statistics in this hospital, when compared with other hospitals where surgery on the phthisiologic patients has been performed

suddenly nineteen days after the second side had been operated upon. He was doing well for a number of days when suddenly a change was noted in his condition from which he never rallied. Fig. XVI.

Finally, we cannot overestimate the

economic gain the County of Philadelphia, when hospitalization of these patients is shortened by many months. The happy, hopeful expressions, with which these patients leave the hospital to face the future anew makes all the labor and care expended on them worth while.

Tuberculosis in the Practice Of Medicine

ONE hundred thousand beds are maintained in this country, mostly at public expense, for the care and treatment of pulmonary tuberculosis. In the broad sense the expert treatment thus provided for the individual victim of this disease does not represent the most important function. Tuberculosis sanatoria have saved the lives of thousands who have never entered their doors.

At no time has the number of beds available represented more than perhaps 10 per cent of the number of existing cases capable of communicating the disease. The partial isolation, however, of this small group has probably been the most important factor during the last 25 years in reducing the mortality rate—because it has reduced the infection rate upon which the death rate will of necessity depend.

The mortality rate has followed the infection rate, naturally and inevitably, because we have learned so little concerning the factors, either constitutional or environmental, which may or may not affect the evolution of the disease after the primary infection is once acquired. Experience and study do not indicate that we have as yet the information or understanding necessary to exercise any particular influence upon the course of the infection. The scientific problems concerned are manifestly profound and involved. Where at all even touched upon by the best thought, they are controversial; they cannot at present be reasonably defined and in many cases can not

BY

JOHN F. ALLEN, M.D.
Omaha, Nebraska

even be made the subject of conjecture. Any complete or adequate answer to the question why one human being succumbs to tuberculosis and another successfully defends himself against the disease remains almost completely hidden.

It is possible—if one is permitted to indulge in the hypothetical—that when and if the answer to the above question is known, it will have become of slight practical importance so far as the eradication of tuberculosis is concerned. This will be true if human tuberculosis disappears at a rate similar to the bovine variety, and it may do so.

Certainly the study in recent years of the tubercle bacillus itself represents profound thought and admirable scientific research, adding greatly to our knowledge of biological chemistry. Such knowledge may ultimately be employed to give us a better understanding of the pathology. As yet, however, this chemical study cannot be used by the clinical man in a practical way. In no sense may it immediately affect the attitude of thousands of capable men practicing general medicine, who have not yet adopted an adequate concept of or a satisfactory procedure for this disease.

Until rather recently most of our thought and nearly all of our procedure has been directed toward a program largely defensive in nature: We have provided sanatoria with beds for the sick; we have treated the sick by the best methods we could develop; we have partially isolated a small percentage of them

for a temporary period; and we have taught that people should protect themselves against infection.

This type of program has been in the long run fairly satisfactory in progressively reducing the tuberculosis mortality figures. Through hospitalization of a rather small proportion of those suffering from communicable types of tuberculosis, through a general educational campaign, together with some improvement in therapeutic management, the death rate has continued to drop steadily. Other less obvious and less tangible factors have also probably affected the decrease in mortality. In mortality tables tuberculosis has receded from first place to fifth or sixth, having been superseded especially by malignant disease, by pneumonia, and by cardiovascular diseases.

The statement must bear repetition, however, and must be emphasized, that tuberculosis is still the most common cause of death between the ages of 20 and 40. The rate is higher in women than in men. The fact must still be stressed that the disease is communicable and preventable, thus bringing the matter of its decline and possible eradication into the practical domain of preventive medicine.

In diseases such as typhoid and malaria the origin was searched for; not the disease. The disease itself was usually very obvious and well known. In tuberculosis, on the other hand, to find the source or origin it is frequently necessary to hunt the disease, which is often not obvious or known. This requires a change of thought and technique. In the light of what is now actually known, however, the problem is sufficiently tangible for the average physician to employ his knowledge more systematically in his everyday practice.

To be practical, we must admit the necessity of continued defensive tactics, employing them with even more perseverance. Additional hospital beds will have to be provided, continued study and improvement of therapeutic measures must proceed. On the other hand, because of gradually increasing interest on the

part of the public due largely to organized and directed publicity, the medical profession and public health authorities ought now to be able effectively to direct and control, an offensive movement. In this way only will a more adequate control of tuberculosis be ultimately achieved.

To try to accomplish the recovery of an individual patient in whom far-advanced disease is already established, even with the best available modern treatment, is distressing, time consuming, expensive, and uncertain. Moreover, a case that has reached such a stage when first diagnosed or discovered has already sown the seeds from which a future crop will appear.

The great development in recent years of the surgical treatment of tuberculosis is commendable and remarkable; but the percentage of cases in which this highly technical procedure may be properly and effectively carried out is in reality extremely small. It will probably never influence materially the general mortality rate in tuberculosis.

To think of pulmonary tuberculosis as a disease manifested by fever, night sweats, and emaciation is an obsolete conception. To assume that it is not present because of the absence of such symptoms and signs is entirely unwarranted and frequently fallacious. To be consulted by patients concerning acne, headaches, indigestion, or pregnancy and to fail to recognize the presence of an existing tuberculosis, even though entirely unrelated to what may have prompted the consultation, is not good practice. To discover that a woman with a year old baby has advanced pulmonary tuberculosis is not only discouraging, but indicates a failure in preventive medicine, not alone in one field, but in two.

For a high school girl at time of graduation to have far advanced, practically hopeless disease, although she had consulted a physician six months previously on account of vague complaints of ill health, constitutes a tragedy which might have been prevented. When a young wo-

man during the course of her training in nursing or shortly thereafter is found to have far advanced pulmonary tuberculosis, there has been failure to appreciate and apply the economical, simple methods which are available—were available—to avert such a catastrophe, and which, in the name of practical preventive medicine, should have averted it.

To those with experience in tuberculosis the cases just described will not appear merely or only hypothetical. Similar actual instances arise at present in most communities, both rural and urban.

Those especially interested have, in recent years, agreed upon certain important and practical facts and procedures pertaining to pulmonary tuberculosis. These facts and procedures are so generally accepted and practiced by physicians treating tuberculosis that they have come to be repeated over and over again in our attempts to popularize them and to bring about a more general appreciation and understanding of their importance in the minds of others. It is possible that we may become slightly irksome to one another in so doing. It is possible that we may have our own doubts at times, not as to the validity of our arguments or the emphasis with which we need to state them, but as regards our apparent lack of effectiveness and accomplishment.

A number of diseases have been rather completely brought under human control in the last quarter of a century. They are largely those which, after determination of a specific bacterial organism as the responsible factor in their etiology, could be controlled by applying the principles of sanitary engineering. Other diseases, notably tuberculosis, have been brought partially under control. Many have as yet not been influenced by our efforts at either prevention or cure. Some at least may never be classed as preventable, others never as communicable, still others as not greatly influenced by treatment. Of tuberculosis, in reality, can none of these things be said. Why does medical practice so slowly adopt the conception

that tuberculosis is communicable, is preventable, is responsive to treatment!

Thirty years ago there was a period when medical journals abounded in articles setting forth the importance of the early diagnosis of appendicitis; and no program of a general medical meeting was complete without a paper emphasizing the extreme importance of the early recognition and diagnosis of appendicitis. Unfortunately it is a fact that the death rate from appendicitis remains approximately the same as it was 30 years ago, if not slightly higher. Experience has shown that the contrary is true of tuberculosis. Early diagnosis in tuberculosis means vastly superior response to treatment and a vastly greater number of actual recoveries.

Pneumonia, which at the present time appears near the top of the mortality list, may or may not ultimately be considered as communicable or preventable. Certainly at present it would not be entitled to such classification. Admittedly there has been recent improvement in its therapeutic management. There is nothing to indicate any possible influence, much less control, over its epidemiology.

Cardiac and cardiovascular mortality rates are moving upward. These diseases are certainly not communicable in any true sense, even if to some degree transmissible. We have no information which might be applied towards prevention; and the results of therapy or management do not appear to be particularly related to the time at which their presence is detected. Unless our present conception of them changes radically, they may never be appreciably influenced by the application of simple, known principles or facts. How remarkably this situation changes with respect to tuberculosis!

As compared to such formerly major diseases as typhoid and malaria, the eradication of tuberculosis concerns principles and practices somewhat more involved and requiring more in the way of cooperative effort. The present knowledge available concerning the disease, however, is adequate for a campaign

which should become almost completely successful—a campaign of practice, not of mere propaganda. Credit, however, is due to the forces not directly concerned with the affairs of medicine for their enlightening and educational influence. That such an organization as the National Tuberculosis Association shall continue to publicize facts regarding the disease should benefit all and need injure no one.

The things which to one of experience or special opportunity in tuberculosis are rather obvious are not equally obvious to the public at large. To some extent the same thing is true of competent physicians who are engaged largely in other medical fields. Many fields of medicine deal more with the obvious and objective.

The obstetrician deals largely with the obvious, manifested by objective external findings. The patient who consults him comes most frequently with a direct question pertaining to her condition. The surgeon in a situation of uncertainty due to a confusion or inadequacy of objective finding may do an "exploratory" and take a look. The orthopedist, the nose and throat specialist, and the general practitioner are accustomed to dealing with objective evidence or pronounced subjective symptoms.

There are few diseases which may become as well established in the human body as tuberculosis without presenting objective manifestations to attract the attention of the patient and the physician. Yet few diseases are more definitely capable of exclusion by proper routine procedure.

Even the internist may forget that the symptoms of pulmonary tuberculosis are neither immediate, direct, precise, nor pronounced; and that an absence of symptoms is not conclusive.

For present knowledge concerning tuberculosis to be commonly and effectively applied—and unless it is commonly applied it will not, of course, be effective—we should think and act along three lines and try to get others to do so:

First, it is possible in private practice,

in public health work, and by means of survey projects to determine, especially in individuals not beyond school age, the actual percentage who are infected and who they are. It is the right and duty of the man in private practice to obtain this information from all individuals who consult him regarding tuberculosis or any other health matter. Should not the family physician have the information as to whether children of a family are skin-positive to tuberculin as well as a record that they have been Schick and Dick tested and that their tonsils are "out"? He might "pick up" a case of tuberculosis in a family before it is too late if he adopted such a procedure.

Second, it should become common practice for all such known infected individuals to be observed at stated intervals by their physicians in order that the 5 or 10 per cent (some would say more) of this group who will ultimately develop an actual reinfection type of pulmonary lesion (formerly referred to as the adult type of tuberculosis) may be detected before obvious so-called clinical symptoms have appeared. This necessitates x-ray examination of the chest.

And third, some effort must be made to uncover in the group of older people the hidden case, chronic, and previously unrecognized.

Tuberculin skin testing is notably reliable in disclosing the individual of any age who has at any time previously been in intimate and prolonged association with any other individual capable of communicating the infection. When a child of pre-school age is found to have a positive tuberculin reaction it may be inferred that the source from which that child's infection came is not far away. Between the ages of 5 and 15 the appearance of reinfection (adult type disease) is very infrequent, occurring very rarely, and usually in instances where the child is known to be living in a family in which an advanced case of the disease exists. During the time of high school age or adolescence children may become infected from sources other than their own family;

but even though there is no previously known case of an older person in that family, it is necessary and morally obligatory to exclude the disease by examination of the older members.

When tuberculin testing has been adopted as a routine medical procedure in the younger generation and the individuals who have become infected are thus recognized, the question of early diagnosis will gradually become an actual realization—but only then. The fact that the observation of tuberculin-positive reactors for the definite purpose of detecting the early evolution of reinfection disease requires an x-ray examination does not make the problem insoluble. The percentage of infected individuals is not large in rural districts; and the economic burden would be in no sense comparable to the continued financial load of operating a sanatorium at public expense for the

care of the chronically ill patients.

The most satisfactory and effective form of treatment for the individual who has been diagnosed prior to the evolution of gross destructive disease is artificial pneumothorax. This, when instituted early, is a proved, generally recognized, and admittedly effective type of treatment in a high percentage of cases.

Tuberculin testing, early diagnosis by x-ray, and treatment by artificial pneumothorax, with the employment of other surgical measures in properly selected cases, are now the essential procedures necessary to meet successfully the problem of eradicating human tuberculosis. In order to be effective, skin testing and x-ray examination must become a routine and universal practice. The private physician should accept that which is his professional obligation and at the same time his legitimate opportunity.

The Determination of Activity in Pulmonary Tuberculosis

ONE of the most difficult problems facing those who treat pulmonary tuberculosis is that of determining the degree of activity present in those patients who present few or no symptoms.

It is easy enough to state that the disease is active when there is fever, cough, marked expectoration containing tubercle bacilli, fatigue, and history of loss of appetite and weight. No one in the presence of these findings would hesitate to prescribe immediate rest in bed, and, in most cases, suitable collapse therapy as well.

There are many patients, however, who present these symptoms to but slight degree, or whose symptoms rapidly disappear after a few weeks of rest. Unfortunately, a careful check will reveal that in many of this group there will be found an actual spread or increase of the involvement during the very period when the symptoms were slight or unchanged. This is particularly true in patients with

BY

JOHN S. PACKARD, M.D.

Allenwood, Penn.

exudative lesions, which are characterized on the x-ray by shadows having a soft fluffy appearance, with ill-defined borders. This type of lesion is seen so frequently in young adults that its dangerous features cannot be too strongly emphasized; the exudative lesion is an acute or inflammatory one, and the changes in it are sudden and rapid. These changes, if destructive, may be regrettably extensive before an increase in symptoms is noted.

One example might serve to illustrate a frequent occurrence in the history of patients entering the sanatorium:—a young woman consulted her physician because of slight cough, fatigue and loss of weight. There was very little expectoration, and this was negative for tubercle bacilli. A chest roentgenogram revealed a soft, exudative, minimal lesion in the left upper lobe. The patient was sent to a summer resort, where she spent two

months resting to some degree, but without supervision. She gained twelve pounds in weight, though a slight cough persisted. A second x-ray taken on her return home showed that the disease now involved the whole upper lobe, with the presence of several cavities. The sputum now contained numerous tubercle bacilli. She was sent to a sanatorium at once where pneumothorax was instituted immediately. The value of an excellent and commendable early diagnosis was jeopardized because of the physician's failure to recognize the degree of activity present in the lesion.

The fact that negative sputum may be of no significance as to the presence of activity was well illustrated by the case described above. In patients with exudative lesions the absence of demonstrable tubercle bacilli may merely indicate that there has been as yet no marked caseation, with subsequent softening, excavation and rupture into the bronchus. Microscopically these exudates consist of serum, fibrin, and leukocytes, which may closely resemble non-tuberculous pneumonic patches. The symptoms at this stage are mild, and by the time tubercle bacilli appear in the sputum the exudate, instead of resolving, has already progressed to caseation and cavity formation.

The necessity for close observation of the exudative lesion is equally important even after the patient has entered the sanatorium and is on a strict rest routine. Here again the physician sometimes finds that a slight early lesion of the inflammatory type may actually grow worse, under ideal conditions of rest and nourishment. Pneumothorax may be strongly advisable after a few weeks of bed rest, when at the onset of the treatment the lesion was so slight as to make doubtful the need for any treatment at all.

Thus it is of great importance to recognize the fact that pulmonary tuberculosis is in the young adult seldom the disease of slow onset and evolution that it was formerly considered to be. At least a careful distinction should be attempted in every case as to the character of the

involvement. The predominantly proliferative, with a tendency to fibrosis, present sharp clear shadows on the roentgenogram with little or no change in weeks or months. The exudative type, acute and inflammatory, changes rapidly for better or for worse, often in a period of weeks.

It is clear that in the type of lesion under discussion, symptoms cannot be relied upon to indicate the presence of activity. Physical signs are practically valueless in this respect. Rales may be entirely absent in early cases. Heise¹ found them occurring in only twenty-nine per cent of minimal and sixty-five per cent of moderately advanced cases of pulmonary tuberculosis. Where rales are found they may be stationary while the disease progresses, or they may increase as the disease improves. Heise¹ found in a study of six hundred and forty cases, that of those whose rales were heard over an increasing area during a six-months period, six per cent showed no change, seventy-one per cent were actually improved, and twenty-three per cent were worse. The fact that rales may actually increase as the lesion improves is explained by the fact that during resolution of inflammatory exudate better aeration of the alveoli occurs. Again rales may persist for an indefinite period after the tuberculosis has become well healed. Amberson² states that such rales have been heard for at least eighteen years after complete resolution has taken place. He states that "Since the early nineteen hundreds, doubt has grown to knowledge that such rales have no relationship to the activity of the tuberculous process." The work of Amberson² and others indicates that these rales are due to structural damage which is left after the clearing of tuberculous areas. These changes include interstitial fibrosis, alveolar emphysema, and damaged and obstructed bronchioles, all of which lead to accumulation and poor drainage of secretions in the alveoli and bronchioles of these areas. It is obvious from this and similar studies that one would be foolhardy indeed to assure

the patient of his favorable progress as indicated by the physical signs in his chest.

It is because of the lack of dependability of physical signs and symptoms that a number of laboratory aids to the determination of tuberculous activity have been devised. A large amount of work has been done in correlating changes in the picture of the white blood cells with changes in the diseased lung. The Schilling differential count, the lymphocyte-monocyte ratio, the filament-non-filament count, have all been studied in this relation. One of the most comprehensive of the blood interpretations is the leukocytic index, devised to express the work of Medlar. It includes values for the neutrophile-lymphocyte ratio as well as for the total number of neutrophiles, lymphocytes, and monocytes in the circulatory blood.

All these studies are based upon the realization that the pathological activity of the lesion is reflected in the blood picture. An increase in percentage of monocytes is taken to indicate dissemination of the disease with new tubercle formation, while a predominance of lymphocytes is seen when healing is taking place. The neutrophile is most in evidence when breakdown and cavity formation occur. According to the leukocytic index an increase in the monocytes above ten per cent, and a rise in the total white count above 10,000 present an unfavorable significance. In a similar manner an increasing percentage of neutrophiles to lymphocytes above a 1-1 proportion is unfavorable, in that the tendency to tissue breakdown and ulceration is overbalancing the trend toward healing. When the neutrophile-lymphocyte ratio is greater than 2-1, a definitely unfavorable trend is indicated, that is, when the percentage of neutrophiles is above sixty-five and the percentage of lymphocytes below twenty-five. The total leukocyte count is taken as an indication of the extent or volume of diseased tissue present.

The blood sedimentation rate also has been extensively applied to reflect varia-

tions in tuberculous activity, and in many cases is a valuable aid in forming an opinion. The conclusions from the sedimentation rate are based on the fact that the rapidity of the rate depends upon cellular destruction, and thus is an index of pathological activity.

While all these blood studies have definite value, they cannot be relied upon too heavily in the early minimal lesion where they are badly needed. The activity present at any one time may be too slight to be reflected in these interpretations, yet the lesion may be a dangerous one with destructive potentialities. For example, one occasionally sees a normal blood sedimentation rate in an individual having a good sized cavity and sputum positive for tubercle bacilli. The presence of the cavity and positive sputum bring up the possibility of hemorrhage or of bronchogenic spread of the disease to uninvolved parts of the lung, yet the normal sedimentation rate would give no hint of this danger.

Here is where the serial roentgenogram proves the most valuable aid we possess. Lesions of the soft fluffy type should be followed at close intervals until indications of healing are definite; that is until the abnormal shadows present a sharp and clear cut appearance, or have largely disappeared because of resolution of exudate. Fales³ supports this view and quotes McPhedran's opinion that "the best evidence of a healed lesion is to be found in the sharp dense strands which remain stable for months under competent roentgenographic control." Brown⁴ advises that the exudative lesion be x-rayed by weeks, and watched carefully for sudden changes.

Ordway⁵ in his excellent summary of the question states that "Serial roentgenograms, particularly in the beginning of tuberculous pulmonary infection, may be the only means of demonstrating active tuberculosis."

It is not enough, therefore, to make the early diagnosis. It is most essential to determine the degree of activity present. Upon such determination the future of

the patient may depend. Ordway again says ⁵, "while patients are under observation and treatment serial roentgenograms afford the best means of determining activity; next in order of value the leukocytic reactions, red cell sedimentation rate; lastly, physical signs and symptoms."

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Report of the Statistical Committee On the Medical Schools *

DURING the year your Statistical Committee sent out questionnaires to all the approved full course medical schools in the United States, sixty-eight in all.

Fifty-six replies were eventually received. Each questionnaire contained eleven questions. Some of these questions had sub-heads.

The purpose of the questionnaire was to obtain some definite idea as to how the subject of tuberculosis was being handled in the medical schools throughout the country. The committee was prompted to do this because one of the main objectives of this organization is to secure the assistance of the general practitioner in meeting our tuberculosis problem.

The committee feels very strongly that if this is to be done effectively, it should begin with the medical student. In school, his interest should be aroused by his being given a workable knowledge of the modern concept of the early diagnosis and treatment of tuberculosis. It is too late to get the help of the average medical man after he is out in practice unless he has been prepared before he gets out. He is then too busy with many other problems, chief among which is trying to earn a living.

BY
E. W. HAYES, M.D.**
Chairman
Monrovia, Calif.

Those of us who are associated with internes who come from the different medical schools have an opportunity to observe the inability of the average medical graduate to cooperate in an understanding way in the handling of tuberculosis.

The most striking impression, we feel, that one gets from the questionnaire is the failure of most of the medical schools to teach in a concrete way the practical things the general practitioner should know about the diagnosis and treatment of tuberculosis. Medical schools, no doubt, have many problems to solve, but it must be remembered that the disease tuberculosis has wrought havoc among the human race since time unknown and still presents not only our greatest public health problem, but also causes more invalidism and more deaths during the productive period of life, that is, from twenty to forty, than any other disease.

In the majority of schools there is no particular attention paid to the teaching of the diagnosis and treatment of tuberculosis. It is just a part of the general medical course. In many, the opportunity which the student has to learn about this subject is entirely dependent upon what he can glean from the cases of tuberculosis that appear more or less at random in the general medical wards of public hospitals where the instruction is carried out, for the most part, by men in the

*Read at meeting of the Federation of American Sanatoria, Atlantic City, N. J., June 7, 1937.

**President, American College of Chest Physicians.

general practice of medicine.

Not a few of the medical deans appeared more or less irked at being asked to fill out this questionnaire. We realize, of course, that they probably get a lot of them. A few of the deans said that they were not in favor of dividing the subject of general medicine into special subjects, and this was the attitude of some of our best known medical schools. However, quite a few of the men in charge of the medical schools appeared very much interested and wrote at length and apparently feel that the situation regarding the teaching of pulmonary tuberculosis needs serious attention. Some of the schools are already giving this subject special attention. Others stated that they had under consideration at the present time the establishment of sub-departments for instruction in the diagnosis and treatment of tuberculosis.

While we do not want to bore you with figures, we should like to summarize briefly the statistics of the questionnaire, which are as follows:

In the first three questions of the questionnaire an effort was made to determine in what years of the medical course general physical diagnosis, as it pertains to the lungs is taught as well as to find out the number of hours devoted to this subject. The replies were as follows:

In one school the physical diagnosis of diseases of the lungs is taught in the first and second year; in sixteen, in the second year alone; in six, in the third year alone; in eleven, in the second and third years; in two, in the third and fourth years; in six, in the second, third and fourth years. There were seven medical schools unable to answer this question definitely.

In the replies received from 34 schools, the average number of hours devoted to teaching diseases of the lungs in the Junior year was 43.9. There were 15 schools that could not make a definite statement in regard to the hours devoted to this subject in the Junior year.

In replies received from 31 schools, the

average number of hours devoted to the teaching of the diagnosis and treatment of diseases of the lungs in the Senior year was 54.1. There were 18 schools that were unable to make a definite statement in regard to the amount of time devoted to this subject in the Senior year.

In the next three questions, with their sub-heads, an attempt was made to find out if medical schools, during the medical course, segregated, in their teaching, the various phases of the subject of the diagnosis and treatment of diseases of the lungs and, if so, the number of hours devoted to these sub-heads. The replies from 20 schools indicated that the number of hours devoted to the teaching of diagnosis of diseases of the lungs was 71.4. There were 29 schools that could not make a definite reply to this question.

In the replies from 10 schools there was an average of 51.2 hours spent in teaching the differential diagnosis of diseases of the lungs. Thirty-nine schools were unable to reply definitely to this question.

In the replies from 11 schools, the average number of hours devoted to the treatment of diseases of the lungs was 33.6. Thirty-eight schools could not make a definite reply to this question.

The remainder of the questions had to do with the manner in which the teaching was carried out. In 24 schools, there was an average of 18.5 hours devoted to general lectures. There were 25 schools that could not give a definite answer as to how many hours were consumed in general lectures.

There were 22 schools where the student devoted an average of 81.5 hours to examining patients under the close personal supervision and direction of the teacher. There were 27 schools that stated they were unable to make a definite reply as to how many hours were devoted to this kind of work.

There were 39 schools that stated that the average number of students to each instructor in the examination of chests of patients was 6.54. There were ten schools that could not answer this question definitely.

There were 9 schools that stated that their teaching of diagnosis and treatment of diseases of the lungs was carried out in general medical wards. There were 9 in which it was done in tuberculosis sanatoria. There were 23 in which the teaching was carried out in both general medical wards and tuberculosis sanatoria. There were 8 in which the answer to this question was either omitted or indefinite.

There were 16 medical schools that stated that their students had an opportunity during their under-graduate work to spend some time as residents in tuberculosis sanatoria. There were 26 of the schools in which the students did not have this opportunity. The answer to this question, on the part of 7 schools, was either omitted or indefinite.

In 11 of the medical schools, the teaching of the diagnosis and treatment of diseases of the lungs was carried out by instructors in general medicine; in 7, by teachers specializing in diseases of the lungs; in 24, by both the regular instructors in general medicine and chest specialists. Seven institutions did not answer this question definitely.

It will be noted in looking over these figures that the total number of replies to any one question does not equal the entire number of schools that answered

our questionnaire. This is due to the fact that an occasional school did not feel called upon to answer the questionnaire, but replied by a general letter, simply stating that position in their reply. Others answered the questionnaire fairly fully except in the case of a few of the questions. In a number of cases the figures, when given, were estimates.

Finally, the committee feels that the place to interest and educate the general man in tuberculosis is in the medical schools. They do not feel that the medical schools should take the attitude that a working understanding of this subject should be left for post-graduate study. They feel that, inasmuch as tuberculosis occupies such an important place in the medical field today, the subject should have at least a sub-department in the medical curriculum. Accordingly, they recommend that a committee composed of tuberculosis workers and representatives from the medical schools should be formed, and that this committee work out some plan for the more efficient teaching of the subject of tuberculosis, that can be recommended to the medical schools, and that all efforts possible be made to have the medical schools adopt such a plan so that the teaching of the subject will not only be uniform, but effective.

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Dr. Richard A. Overholt, Boston, Mass.
Dr. Paul H. Ringer, Asheville, N. C.
Dr. L. J. Moorman, Oklahoma City, Okla.
Dr. Wm. Atmar Smith, Charleston, S. C.
Dr. LeRoy Gardner, Saranac Lake, N. Y.
Dr. Louis Hamman, Baltimore, Md.
Dr. David I. Smith, Durham, N. C.

Dr. Horton Casparis, Vanderbilt University, School of Medicine, Nashville, Tenn.
Dr. Paul A. Turner, Louisville, Ky.
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Uses

It is a potent chemotherapeutic agent when used in beta-hemolytic streptococcal infections^{2, 3}; chronic cases of this type may yield⁴. Erysipelas subsides quickly⁵, the author has treated one case. There are many references to its use in streptococcal infections, especially in puerperal sepsis, septicemia², meningitis, and empyema. Meningococcal meningitis cases⁶ yield to this therapy. It has reduced complications in scarlet fever 21 per cent⁷. Gonococcal infections^{8, 9} have yielded in an amazing manner. The author has used it with success in the treatment of gas gangrene¹⁰. In type iii pneumococcal infections¹¹ it has been found effective. Plasmodia have disappeared from the blood in quartan malaria¹² under this therapy. Bacterium coli infections have been treated with success^{13, 14}.

It should be given as early as possible in treating the above infections. A positive diagnosis is desirable, but a strongly presumptive one is sufficient.

Dosage

In adults¹⁵ of 100 pounds or more, 10

BY

HAROLD R. BOHLMAN, M.D.*

Baltimore, Md.

to 16 five grain tablets form the initial dose which in about seven hours should raise concentration in blood to approximately 10 mgm. per cent. If 50 to 90 pounds, 6 to 10 five grain tablets. Following the initial dose, 2 or 3 tablets at four hour intervals should be given. Children weighing from 25 to 40 pounds should be given 4 to 6 five grain tablets and 1 to 2 tablets every four hours after.

If patient cannot swallow the tablets or absorption is faulty (determination of concentration in the blood can be made¹⁶ and should be 8 to 10 mgm. per cent) then parenteral route may be used. Sulphanilamide is soluble up to 1 per cent in physiologic saline solution at 98.6° F. The solution should be brought to boiling; removed from flame and 0.8 to 1 gm. of chemical added per 100 cc., shaking flask will hasten dissolution and it should then be cooled to 98.6° F. and given by hypodermoclysis: 1 per cent solution keeps fairly well at room temperature: it will crystallize out of solution in the ice box. In adults 700 cc. of this solution is an initial dose, followed by 500 cc. at eight hour periods during the first twenty-four hours. Smaller doses should be used in 50 to 90 pound individuals. 100 to 200 cc. may be used in children of 25 to 50 pounds. Babies may be given 1 gm. per 10 pounds of body weight during the first 24 hours. Intrathecal injections may be given but Long cautions, "Never inject the solution under positive pressure."

"Prontosil solution" should be given subcutaneously, 20 cc. at four hour intervals. 50 to 90 pound individuals 10 to 15 cc.; children 5 to 10 cc. It has been given by intrapleural route¹⁷.

Dosages are changing continually and the author feels that smaller initial doses may well be used; and has found the following dosage very satisfactory; 80 grains for two days, 60 grains for three days, and 40 grains for eight days. With definite clinical improvement the dosage should be reduced. Long advises cutting the dose

*Instructor in Orthopedic Surgery, The Johns Hopkins University School of Medicine.

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Toxic Symptoms

Varying subjective symptoms occur; mental confusion, nausea, even vertigo, paresthesias, etc. Individuals under treatment should not fly or drive. Sedatives should be used with caution while sulphanilamide is being given. Gastric discomfort is frequent. Acidosis¹⁵ may occur with drop in CO₂ combining power of blood. Southworth¹⁸ noted this drop and lists two cases of air hunger, with very acid urine, without ketonuria. For acidosis Long suggests use of 1/6 molar sodium lactate solution either by intravenous or subcutaneous route, with frequent small hypodermoclyses of this solution in infants. Fever may occur with larger doses. Drug eruptions and desquamation may occur. Patients under this therapy have fainted on the street; one fell from a truck, another noted great incoordination²⁰.

Dyspnoea and cyanosis may occur. Physical exertion should be reduced to a minimum in these cases, and a careful blood check made at least daily. Frost²¹ lists a death with cyanosis and respiratory failure. Discombe²² notes sulphemoglobinemia following sulphanilamide therapy and thought it was associated with use of magnesium sulphate. He notes great danger if hemoglobin falls below 30 per cent, after which deeper cyanosis will not occur and continued use will further change hemoglobin to the inert form; he asks "what would be the plight of a patient with infection and 15 per cent hemoglobin?" He cautions danger in anemia patients. Paton and Eaton²³ found sulphemoglobin in blood by spectroscope 46 days after therapy was stopped; and note that it was intracorpuseular. They state methemoglobin may occur but quickly clears (24 hours) with oxygen. They have found both occurring in one case²⁴. They caution avoidance of magnesium sulphate or any drugs with sulphone group—SO₂—when giving sulphanilamide; and suggest transfusion. Borst²⁵ lists a death from agranulocytosis following use of this

compound. Harvey and Janeway²⁶ describe three cases of acute hemolytic anemia of great severity, one with a red cell count reduced to 1,570,000, hemoglobin of 30 per cent, and white blood cells of 87,000, temperature rising to 102.6° F. after above therapy; patient recovered with transfusions. Another case revealed 18 per cent hemoglobin but recovered with transfusions. They note depression of liver function. Janeway²⁷ has since noted eight additional cases; one with severe hemoglobinuria and uremia as result of this medication.

Long¹⁵ states that damaged kidneys excrete sulphanilamide slowly and suggests watching blood levels daily; cautions stopping the drug, if 15 or 20 gm. per cent is reached. Forcing fluid will aid in flushing it out of the system. The author has two cases in which hemoglobin has not returned to normal in eight weeks.

Some druggists are refusing to sell this compound except by prescription. This seems very wise, and should be encouraged.

Summary

1. Sulphanilamide should be given only under the closest supervision.
2. It is not a panacea.
3. It has great therapeutic values in certain types of bacterial infections.
4. The author believes that huge doses should be avoided.
5. Toxic characteristics should be fully understood before prescribing, and one should be prepared to transfuse on short notice.
6. Much more knowledge is needed regarding all phases of action of this drug.

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ORGANIZATION NEWS

JAMIE WILLIAM DICKIE

OBITUARY

Dr. Jamie William Dickie of Southern Pines, North Carolina died Tuesday morning July 6, at 8:25 A. M. at the Moore County Hospital, North Carolina. Apparently he had been in good health until three days before, when he developed a severe heart attack. The next day pneumonia developed and he lived only 72 hours. He was 43 years old. Dr. Dickie was one of two sons of George T. Dickie of Ontario, Canada and Amalie Copplege Dickie and was born in Epsom, North Carolina on October 25, 1894. He was a graduate of Wake Forest College and Jefferson Medical College. Following his graduation he joined the U. S. Navy Medical Corps, with which organization he served throughout the war. Following his discharge from the service he spent two years working with Dr. W. L. Dunn of Asheville and several other tuberculosis Sanatoria: He came to Southern Pines in the fall of 1919 to establish Pine Crest Manor Sanatorium. He was active medical director of the Sanatorium until last summer when he left to spend a year doing post-graduate work in internal medicine in the Graduate School of Medicine of the University of Pennsylvania and at Peter Bent Brigham Hospital in Boston. He had returned to Southern Pines only a few days before his illness, to again assume active direction of the Sanatorium.

Dr. Dickie was always very active in the civic affairs of Southern Pines. He was a charter member and former president of the Aberdeen Kiwanis Club.

Dr. Dickie is survived by his wife, the former Inez Benthall of Woodland, a son, David Henry, a daughter, Jane, and his mother and one brother, Durwood Dickie of Henderson, North Carolina.

Dr. Dickie was a member of the Moore County Medical Society, Fifth District State Medical Society, Southern Medical Association, American Medical Association, American College of Physicians, and American College of Chest Physicians.

Appointments In Colorado.

Dr. Charles O. Giese, Colorado Springs, has been appointed as the Medical Director of the Modern Woodmen of America Sanatorium, Woodmen, Colorado. The sanatorium is for members of the Order of Modern Woodmen of America and is located seven miles from Colorado Springs. Dr. Giese succeeds Dr. Fred A. Forney, who resigned to accept the position of Director of the newly created Division of Tuberculosis in the State Welfare Department. Dr. Forney will be in charge of administering funds recently voted for the hospitalization of indigent tuberculous citizens of the State of Colorado in private tuberculosis sanatoria located within the State.

1938 Annual Meeting.

Dr. Edward W. Hayes, Monrovia, California; President of the American College of Chest Physicians announces the following appointments to arrange and supervise the 1938 meeting of the American College of Chest Physicians, which will be held at San Francisco, California, June 13th.

Dr. Wm. C. Voorsanger, San Francisco, California; Chairman, General Arrangements Committee.

Dr. Harold G. Trimble, Oakland, California; Chairman, Scientific Program Committee.

Dr. Harry C. Warren, Belmont, California; Chairman, Entertainment Committee.

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